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## Chapter 8

# Biosolids Program

Biosolids are the nutrient-rich organic material produced by treating wastewater solids. After they are processed and treated, biosolids can be beneficially reused as a fertilizer and soil amendment. RWSP policies guide King County to continue to produce and market Class B biosolids and to evaluate alternative technologies to produce the highest quality marketable biosolids, including Class A biosolids.<sup>1,2</sup>

This chapter describes the county's Biosolids Program activities and milestones in 2005 and its planned activities for 2006.

## 8.1 Accomplishments in 2005

### 8.1.1 Use of Biosolids

The Wastewater Treatment Division (WTD) continued to produce high quality Class B biosolids at the South and West Point plants. Approximately 115,000 wet tons of biosolids were produced in 2005, all of which was recycled as a soil amendment for forestry and agricultural applications and to make compost. Monitoring continues to show low levels of pollutants and excellent nutrient value of biosolids.

In 2005, King County's biosolids were used as a soil amendment for a variety of applications:

- 4,600 acres of wheat in Douglas County
- 245 acres of wheat, 789 acres of hops, and 19 acres of grapes in the Yakima Valley
- 213 acres of state forestlands and 1,236 acres of Douglas-fir plantations in Hancock's Snoqualmie Forest as part of the Mountains to Sound Greenway Biosolids Forestry Program

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<sup>1</sup> Class B biosolids refer to biosolids that have been treated to significantly reduce pathogens to levels that are safe for beneficial use in land application.

<sup>2</sup> Class A biosolids refer to biosolids that have been treated to reduce pathogens to below detectable levels. Biosolids that meet this designation can be used without site access or crop harvest restrictions and are exempt from site-specific permits. Federal regulations require Class A level of quality for biosolids that are sold or given away in a bag or other container or that are applied to lawns or home gardens.

### 8.1.2 Investigation and Implementation of Biosolids Technologies

New “high-solids” centrifuges were installed and began operating at the South Treatment Plant in February 2005.<sup>3</sup> These centrifuges remove more water from the biosolids. As a result, the number of biosolids truck trips was reduced by 17 percent despite a 5 percent increase in solids produced in 2005.

In 2005, WTD conducted further investigations into the most appropriate technologies and resultant costs for producing Class A biosolids at its regional treatment plants. These technologies would open up opportunities to market the product in King County and western Washington, thereby reducing haul costs. The investigation concluded that temperature-phased anaerobic digestion would be the most viable alternative for converting each plant to Class A biosolids production. Further assessment of costs and benefits will continue in 2006.

### 8.1.3 Permits and Certification

King County submitted an application to the Washington State Department of Ecology in September 2005 to renew coverage under the statewide general permit for biosolids. No significant changes to the county’s biosolids program are anticipated during the five-year permit cycle.

WTD continued operating as a certified program in the National Biosolids Partnership's Environmental Management System (EMS) for biosolids. An audit conducted by the NSF-International Strategic Registrations in 2004 verified King County’s conformance to EMS requirements, making the biosolids program eligible for five-year certification. Participation in the National Biosolids Partnership represents a commitment to improvements in biosolids management practices to address issues of public concern, such as quality and odor. More information on the EMS is on the Web at <http://dnr.metrokc.gov/wtd/biosolids/EMS.htm>

### 8.1.4 Cost Savings

The biosolids program realized significant savings for the county through sales tax exemptions for machinery, equipment, and ingredients used to make the biosolids product ready for sale. The county receives revenue from landowners for the nutrient and soil amendment value of biosolids, thereby meeting the requirement that a product is sold.<sup>4</sup> More than \$1 million in tax refunds and credits were received from the Washington State Department of Revenue for purchases of centrifuges and polymer made from 1999 to 2004.<sup>5</sup>

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<sup>3</sup> Centrifuges are equipment that removes water from biosolids.

<sup>4</sup> In 2005, the Biosolids Program generated \$100,000 in fertilizer revenue from its customers.

<sup>5</sup> Polymer refers to products added to digested solids prior to dewatering. Polymer helps to more effectively separate the solids from the water. Removing water from the solids reduces the volume of biosolids produced, which in turn reduces the number of haul vehicles leaving the plants.

## 8.2 Schedule for 2006

In 2006, design will begin on the three-year West Point Digestion System Improvements project. The improvements are intended to increase the stability of the digestion system and decrease the potential for digester upsets.

WTD will continue to conduct research and demonstration projects to evaluate the safety and benefits of the county's biosolids projects, including evaluating new uses with additional environmental benefits, and to respond to public concerns.

A recent case study evaluated the potential to use biosolids as a tool to maximize carbon sequestration and gain carbon credits for greenhouse gas reductions.<sup>6,7</sup> In 2006, the University of Washington will continue to evaluate a range of carbon sequestration options for biosolids. Options include using biosolids to enhance forest growth, to increase soil carbon reserves in agriculture or restoration projects, and to grow energy crops such as oil seed crops for biodiesel. The study will include details on how to account for carbon storage in soils and in different ecosystems.

Visit the Biosolids Program Web site for more information:  
<http://dnr.metrokc.gov/wtd/biosolids/>

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<sup>6</sup> Carbon sequestration is the process through which agricultural and forestry practices remove carbon dioxide (CO<sub>2</sub>) from the atmosphere. CO<sub>2</sub> is a major contributor to global warming.

<sup>7</sup> In July 2006, the King County Council approved membership in the Chicago Climate Exchange, which works to reduce greenhouse gas emissions through binding goals and the trading of "carbon credits." The trading of carbon credits is similar to pollution credit programs that allow industries and jurisdictions to sell, trade, or purchase emissions that contribute to air pollution, with the goal of reducing the overall amount of emissions.